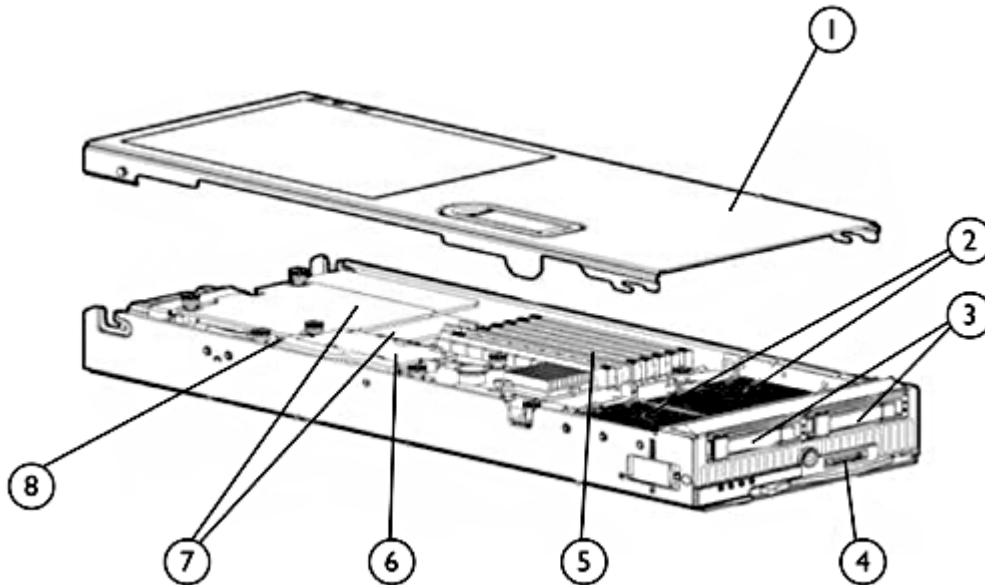


### Overview



**HP ProLiant BL460c Server Blade**

- |                                                                     |                                                                                           |
|---------------------------------------------------------------------|-------------------------------------------------------------------------------------------|
| 1. Access Panel                                                     | 6. Smart Array E200i Controller (optional battery-backed write cache)                     |
| 2. Up to two Intel Dual-Core Xeon™ processors                       | 7. Two Mezzanine slots (accommodates one Type I mezzanine and one Type II mezzanine card) |
| 3. Small form factor (SFF) hot-plug drive bays                      | 8. Internal USB Connector                                                                 |
| 4. Local I/O connector                                              |                                                                                           |
| 5. Eight (8) PC2-5300, Fully Buffered DIMMs (DDR2-667) Memory Slots |                                                                                           |

### At A Glance

This document covers the HP ProLiant BL460c server blade only. For more information on HP BladeSystems c-Class Infrastructure and HP BladeSystem c-Class Interconnect Components, please see the following QuickSpecs:

HP BladeSystem c-Class Infrastructure QuickSpecs:

[http://h18000.www1.hp.com/products/quickspecs/12517\\_div/12517\\_div.HTML](http://h18000.www1.hp.com/products/quickspecs/12517_div/12517_div.HTML)

and HP BladeSystem c-Class Interconnect Components QuickSpecs:

[http://h18000.www1.hp.com/products/quickspecs/12524\\_div/12524\\_div.HTML](http://h18000.www1.hp.com/products/quickspecs/12524_div/12524_div.HTML)

The HP ProLiant BL460c provides greater 2P x86 server blade density without compromise and maximum power-efficiency with flexibility and choice.

HP ProLiant BL460c server blade includes:

- **Processor:**
  - Up to two Intel® Xeon® 5000 series Dual-Core processors
  - Supports up to 3.20 GHz (MV) 1066 MHz or 667 MHz FSB; 2x2MB Level 2 cache memory
  - Intel 5000P chipset supporting up to a 1066 MHz Front Side Bus
- **Memory:**
  - Up to 16 GB of memory, supported by (8) slots of PC2-5300 Fully Buffered DIMMs (DDR2-667)
  - Supporting memory interleaving (2x1); memory mirroring; and online spare capacity

### Overview

**NOTE:** 8 GB Fully Buffered DIMM option kit will be available shortly. Today's maximum is 16 GB utilizing 2 GB DIMMs in a 4 GB Fully Buffered DIMM option kit.

- **Storage Controller:**
  - Integrated Smart Array E200i RAID controller with 64 MB cache (with optional battery-backed write-cache with an upgrade to 128 MB cache(BBWC)). Supports RAID 0,1.
- **Internal Drive Support:**
  - Up to 2 small form factor (SFF) SAS or SATA hot plug hard disk drives
- **Network Controller:**
  - Two (2) Embedded Dual NC373i Multifunction Gigabit Network Adapters
  - One (1) additional 10/100 NIC dedicated to iLO 2 Management
- **Mezzanine Support:**
  - Two (2) additional I/O expansion slots via Type I and Type II mezzanine cards
  - Supports up to (2) mezzanine cards
    - Dual-Port Fibre Channel Mezzanine (4-Gb) options for SAN connectivity (Choice of Emulex or QLogic).
    - Ethernet NIC Mezzanine options for additional network ports
      - HP NC373m PCI Express Dual Port Multifunction Gigabit Server Adapter
      - HP NC326m PCI Express Dual Port 1Gb Server Adapter for c-Class BladeSystem
  - Infiniband (IB) and 10GbE planned for future support
- **Form Factor:**
  - HP ProLiant BL460c server blade plugs vertically into the BladeSystem c7000 enclosure
- **Management:**
  - Integrated Lights-Out 2 (iLO 2) Standard Blade Edition (includes virtual KVM and graphical remote console at no additional cost)
- **Operating Systems:**
  - Supports Windows, Linux, and Netware Operating Systems
- **Enclosures:**
  - HP ProLiant BL460c server blade plugs vertically into the BladeSystem c7000 enclosure
- **Warranty:**
  - Protected by HP Services and a worldwide network of resellers and service providers. Three-year Next Business Day, on-site limited global warranty. Certain restrictions and exclusions apply. Pre-Failure Notification on processors, memory, and SCSI hard drives. SATA hard drives have a one year warranty

### Standard Features (Server Blade)

Processor	Dual-core Intel Xeon 5063 Processor (3.2 GHz MV, 1066 FSB) Mid-Voltage Dual-core Intel Xeon 5050 Processor (3.0 GHz, 667 FSB)* <b>NOTE:</b> Intel 5000 series processors are 64-bit, Dual-core, support Hyper Threading, and Intel VT. <b>NOTE:</b> *Offered through CTO (Factory Integrated Models) only.		
Upgradeability	Upgradeable to Intel® Xeon® 5100 series Dual-Core processors		
Cache Memory	2x2MB Level 2 cache memory		
Chipset	Intel® 5000P Chipset		
Memory	Type Standard Maximum	PC2-5300 Fully Buffered DIMMs (DDR2-667) 2 GB (2 x 1 GB) 16 GB (8 x 2 GB) <b>NOTE:</b> 8 GB Fully Buffered DIMM option kit will be available shortly to allow a maximum of 32 GB. Current maximum is 16 GB utilizing 2 GB DIMMs in a 4 GB Fully Buffered DIMM option kit. <b>NOTE:</b> Memory must be installed in pairs.	
Network Adapter	(2) Embedded Dual NC373i Multifunction Gigabit Network Adapters with TCP/IP Offload Engine One (1) additional 10/100 NIC dedicated to iLO 2 Management		
Expansion Slots	Two Mezzanine slots <b>NOTE:</b> Accommodates one Type I mezzanine card and one Type II mezzanine card.		
Integrated Manageability	Integrated Lights-Out 2 (iLO 2) Standard Blade Edition (integrated on motherboard)		
Storage Controller	Smart Array E200i Controller	64 MB memory module supports RAID 0,1 Available upgrades: 128 MB with Battery-backed write cache	
Maximum Internal Storage	Hot Plug Serial Attach SCSI (SAS) Hot Plug Serial ATA (SATA)	144GB SAS 120GB SATA	2 x 72GB Serial SCSI 2 x 60GB Serial ATA
Graphics	Integrated ATI RN-50 1280 x 1024 x 16M color (32 MB DDR1 memory)		

Standard Features (Server Blade)

Graphics Resolution Supported	Resolution Color Depths	Depths 1280 x 1024, 16.7M, 64k, 256.16 1024 x 768, 16.7M, 64k, 256,16 800 x 600, 16,7M, 64k, 256, 16 640 x 480, 16,7M, 64k, 256, 16
Fibre Channel on the HP ProLiant BL460c server blade	<p>Two optional Fibre Channel HBAs are supported by the HP ProLiant BL460c. Both mezzanine circuit boards connect directly to the server blade system board. These Fibre Channel HBAs are available via option kits and must be ordered separately.</p> <p>Two option kits</p> <p>Emulex LPe1105-HP 4Gb FC HBA for HP c-Class BladeSystem (403621-B21)</p> <ul style="list-style-type: none"><li>Based on the same field-proven ASIC, firmware, and driver technology as Emulex's renowned LPe1150 HBA, the Emulex LPe1105-HP is fully driver compatible with all Emulex HBAs</li></ul> <p>QLogic QMH2462 4Gb FC HBA for HP c-Class BladeSystem (403619-B21)</p> <ul style="list-style-type: none"><li>Uses common drivers which means that customers can standardize on one QLogic driver whether they are using the QMH2462 or other 4Gb and 2Gb HBAs powered by QLogic</li></ul> <p>Emulex and QLogic Fibre Channel HBAs feature:</p> <ul style="list-style-type: none"><li>Optimal performance utilizing PCI Express</li><li>4/2/1Gb/s auto negotiating speeds</li><li>Dual-ports for redundant path connections</li><li>Up to two FC HBAs per server blade providing redundant FC HBA support</li><li>Optimized for HP StorageWorks and supported by third party SAN vendors</li><li>Support for Microsoft® Windows® and Linux operating systems environments</li></ul>	
Compatible SAN	<p>HP ProLiant BL460c server blades are optimized for StorageWorks arrays:</p> <ul style="list-style-type: none"><li>HP StorageWorks MSA, EVA, and XP</li></ul> <p>HP ProLiant 460c server blades are compatible with select 3rd party SANs (please see blade storage page for more details: <a href="http://h18000.www1.hp.com/products/servers/proliant-bl/c-Class/storage.html">http://h18000.www1.hp.com/products/servers/proliant-bl/c-Class/storage.html</a>)</p>	

Standard Features

**Insight Control Data Center Edition** Insight Control Data Center Edition delivers foundation management for HP BladeSystem lifecycles, including hardware resource deployment, health monitoring, software version control, performance monitoring and vulnerability scanning and patch management.

Installs the following components by default using the wizard-based integrated installer:

- HP Systems Insight Manager
- Rapid Deployment Pack
- Performance Management Pack
- Vulnerability and Patch Management Pack

Additional ProLiant Essentials software and management tools included on the Insight Control Data Center Edition DVD can be installed manually.

- Virtualization Management Suite
- Workload Management Pack
- HP Open Service Event Manager
- HP Instant Support Enterprise Edition

**NOTE:** For Licensing and Packaging Options please see the options section of this QuickSpecs.

**NOTE:** Insight Control Data Center Edition is delivered with HP BladeSystem c-Class enclosures with either 16-server licenses or 8-server evaluation licenses (30-days). For additional information on HP c-Class Infrastructure please visit: HP BladeSystem c-Class Infrastructure QuickSpecs: [http://h18000.www1.hp.com/products/quickspecs/12517\\_div/12517\\_div.HTML](http://h18000.www1.hp.com/products/quickspecs/12517_div/12517_div.HTML)

**NOTE:** For additional product and licensing information about Insight Control Data Center Edition, HP Systems Insight Manager and Essentials software refer to <http://www.hp.com/servers/proliantessentials>.

Unified Core Services and Flexible Software Extensions	HP Systems Insight Manager	HP Systems Insight Manager (HP SIM) provides a unified, secure and extensible standards-based environment to centrally manage servers, storage and other infrastructure devices, (both HP and non-HP) across multiple operating system platforms.
	ProLiant Essentials Rapid Deployment Pack	Rapid Deployment Pack (RDP) extends HP Systems Insight Manager with a complete deployment solution for HP ProLiant blade servers. RDP provides a central location to configure server hardware, deploy Windows, Linux and VMware ESX operating environments and install HP ProLiant Support Pack drivers using images and scripted profiles.
	ProLiant Essentials Performance Management Pack	ProLiant Essentials Performance Management Pack detects, analyzes, and explains hardware bottlenecks on HP ProLiant servers, HP Integrity servers and shared storage.
	The Vulnerability and Patch Management Pack	The Vulnerability and Patch Management Pack integrates and simplifies the assessment and remediation of operating system vulnerabilities into HP Systems Insight Manager for Windows and Linux platforms.
	Insight Management Agents	The Insight Management Agents should be installed on all HP servers to present system instrumentation, health and configuration information into HP Systems Insight Manager and the HP System Management Homepage. The HP System Management Homepage aggregates systems data from Insight Management Agents and other HP management tools, providing a consolidated browser-based interface for managing individual servers.



### Standard Features

	<p>Insight Management Agents and The HP System Management Homepage are included on ProLiant Support Packs, and can also be installed using the server profiles provided with the ProLiant Essentials Rapid Deployment Pack</p> <p>For additional information about the Management Agents and the HP System Management Homepage please visit the management Web site at <a href="http://www.hp.com/servers/manage">http://www.hp.com/servers/manage</a>.</p>
Subscriber's Choice	<p>Subscriber's Choice Driver and Support Alerts/Notifications is a web-based email subscription service that provides software and driver change notifications for ProLiant products. Sign up at <a href="http://www.hp.com/go/subscriberschoice">http://www.hp.com/go/subscriberschoice</a> and customize your profile to receive various new alerts as they become available, on a weekly or monthly basis.</p>
ProLiant Support Packs and ROMPaq, software	<p>The latest software, drivers, and firmware fully optimized and tested for your ProLiant server and options, available through ProLiant Support Packs the ProLiant Essentials Rapid Deployment Pack, SmartStart or downloaded from Software and Drivers download pages website at <a href="http://www.hp.com/go/support">http://www.hp.com/go/support</a>.</p>

**Optional ProLiant Essentials Value Packs** Optional software offerings that selectively extend the functionality of an Adaptive Infrastructure to address specific business problems and needs:

- Integrated Lights-Out Select Pack - upgrades the Integrated Lights-Out processor with scripted and command line virtual media, Power Regulator reporting and enterprise security
- Intelligent Networking Pack - detects and analyzes network bottlenecks or broken network linkages and steers traffic to the optimum route based on network conditions, plus it provides an extra layer of protection. The virus throttle feature of the solution slows the propagation of fast spreading virus.
- Virtualization Management Software - Get the most out of server virtualization by unifying the management of physical and virtual servers in HP Systems Insight Manager. The Virtual Machine Management Pack plug-in provides central management and control of VMware and Microsoft virtual machines and provides physical host to virtual machine association. The Server Migration Pack plug-in automates the manual task of migrating servers between physical or virtual platforms.
- Workload Management Pack - provides easier management of complex environments, improving overall server utilization and enabling Windows® 2000 customers for the first time to confidently deploy multiple applications on a single multiprocessor ProLiant Server.

**NOTE:** Flexible and volume quantity license kits are available for ProLiant Essentials Value Packs. Refer to <http://www.hp.com/servers/proliantessentials> or the various ProLiant Essentials Value Pack product QuickSpecs for more information.

### SmartStart

SmartStart is a tool that simplifies single server setup, providing a rapid way to deploy reliable and consistent server configurations. SmartStart 7.50 and later can now deploy the HP ProLiant BL460c using the I/O port with an attached USB CD-ROM device. To obtain a copy of SmartStart for your blade server order or download your copy from the SmartStart web site. For more information, please visit the SmartStart Web site at <http://www.hp.com/servers/smartstart>.

### Standard Features

#### OS Support

Microsoft Windows 2000 Server  
Microsoft Windows 2000 Advanced Server  
Microsoft Windows Server 2003, Standard Edition  
Microsoft Windows Server 2003 R2, Standard Edition  
Microsoft Windows Server 2003, Standard x64 Edition  
Microsoft Windows Server 2003 R2, Standard x64 Edition  
Microsoft Windows Server 2003, Web Edition  
Microsoft Windows Server 2003 R2, Web Edition  
Microsoft Windows Server 2003, Enterprise Edition  
Microsoft Windows Server 2003 R2, Enterprise Edition  
Microsoft Windows Server 2003, Enterprise x64 Edition  
Microsoft Windows Server 2003 R2, Enterprise x64 Edition  
Red Hat Enterprise Linux 3  
Red Hat Enterprise Linux 4  
SUSE LINUX Enterprise Server 9  
SUSE LINUX Enterprise Server 10  
Netware 6.5

**NOTE:** For a more complete and up-to-date listing of supported OSs and versions, please visit our OS Support Matrix at: <http://www.hp.com/go/supportos>.

**NOTE:** For an up-to-date listing of the latest drivers available for the ProLiant BL c-Class, please see: <http://www.compaq.com/support/files/server/us/index.html>.

**NOTE:** For a more complete and up-to-date information on Linux support, please visit HP Linux website at: <http://h18000.www1.hp.com/products/servers/linux/hpLinuxcert.html>.

#### Supported Software Options

VMware Virtualization Software  
Red Hat Enterprise Linux and management bundle for HP BladeSystems

**NOTE:** For more information on HP's Certified and Supported HP ProLiant Servers, please visit the VMware Server Support Matrix at:

<http://h18004.www1.hp.com/products/servers/software/vmware/hpvmwarecert.html>

**NOTE:** For a more complete and up-to-date information on Linux for HP BladeSystems support, please visit HP Linux website at:

[http://h18000.www1.hp.com/products/quickspecs/12321\\_div/12321\\_div.HTML](http://h18000.www1.hp.com/products/quickspecs/12321_div/12321_div.HTML)



### Standard Features

#### Intelligent Manageability

Integrated Lights-Out 2 Standard Blade Edition (iLO 2)  
Virtual KVM(Text and Graphical modes)  
Virtual Media (CD ROM ,floppy and USB flash drive) Virtual Power Button Control Integrated Remote Console Embedded system health Blade power consumption reading Browser, command line and scripted access  
Dedicated LAN Connectivity  
Automatic IP Configuration via DHCP/DNS/WINS  
Industry Standard RC4, 128-bit Secure Sockets Layer (SSL) and Secure Shell (SSH) Security  
IML and iLO Event Logging  
Support for 12 user accounts with customizable access  
Upgrade to HP ProLiant Essentials Integrated Lights-Out Select Pack for the following features:

Power Regulator reporting  
Virtual Media (command line and scripted multi-server)  
Enterprise security (includes directory services and two-factor authentication)

**NOTE:** Advanced features such as Graphical Remote Console and browser accessible Virtual Floppy/CD-ROM are included with the BL c-Class server.

#### Availability

Dual-Port Fibre Channel Mezzanine Card for redundant SAN connection  
Two hot-plug SAS/SATA hard drive bays and integrated RAID (Smart Array E200i) controller on every server blade (Battery-backed write cache is optional.)  
Redundant ROM on each server blade ECC Memory  
Network adapter teaming (network fault tolerance, transmit load balancing, switch-assisted load balancing)

#### Security

Power-on password  
Administrator's password  
Integrated Lights-Out 2 has 12 customizable user accounts and SSL encryption  
Integrated Lights-Out 2 can be disabled via a Global Setting

#### Factory Express Portfolio for Servers and Storage

HP Factory Express offers configuration, customization, integration and deployment services for HP servers and storage products. Customers can choose how their factory solutions are built, tested, integrated, shipped and deployed.

Factory Express offers service packages for simple configuration, racking, installation, complex configuration and design services as well as individual factory services, such as image loading, asset tagging, and custom packaging. HP products supported through Factory Express include a wide array of servers and storage: HP Integrity, HP ProLiant, HP ProLiant Server Blades, HP BladeSystem, HP 9000 servers as well as the MSA1000, VA7xxx, EVA, XP, rackable tape libraries and configurable network switches.

For more information on Factory Express services on your specific server model please contact your sales representative or go to <http://www.hp.com/go/factory-express>.



### Standard Features

#### RoHS Compliant

For Resellers in countries/regions with RoHS legislation (see NOTE) (e.g. EU, China, etc.) The use of the noted material in a solution and subsequent resale of that solution will result in the solution no longer meeting the requirements of RoHS legislation.

**NOTE:** Directive 2002/95/EC restricts the use of lead, mercury, cadmium, hexavalent chromium, PBBs and PBDEs in electronic products. Countries/regions outside the EU, eg. China, are introducing similar legislation. References to 'RoHS legislation' means requirements of Directive 2002/95/EC or to similar substance restriction legislation enacted by any country/region outside the EU.

#### Service and Support

This product is covered by a global limited warranty and supported by HP Services and a worldwide network of resellers and service providers. Hardware diagnostic support and repair is available for three years from date of purchase. Support for software and initial setup is available for 90 days from date of purchase. Additional support may be covered under the warranty or available for an additional fee. Enhancements to warranty services are available through HP Care Pack services or customized service agreements.

**NOTE:** Server Blade Limited Warranty includes 3 year Parts, 3 year Labor, 3-year on-site support. This warranty supports the HP ProLiant BL460c and BL480c Server Blades.

**NOTE:** Server Blade Enclosure Limited Warranty includes 3 year Parts, 3 year Labor, 3-year on-site support.

**NOTE:** Server Blade Interconnect Limited Warranty includes 1 year Parts, 1 year Labor, 1-year on-site support.

**NOTE:** The Cisco Catalyst Blade Switch 3020 Limited Warranty includes 1 year Parts, 1 year Labor, 1-year on-site support and 3-years software updates.

Care Pack services provide a range of life cycle support options that let you choose the service levels that meet your business requirements, from basic to mission-critical.

A full range of HP Care Pack hardware and software services are available including:

- Installation and start up
- Education courses
- Extended onsite hardware coverage hours from same business day 13 hours, 5 day to 24 hours, 7 days call window with options including 4-hour response or 6-hour Call To Repair
- Comprehensive range of software technical support for Microsoft, Linux, ProLiant Essentials and VMware-based IT solutions helping to deliver high level of application availability. Response times range from 30 mins for critical problems to 2 hours.
- System Management, Performance Services and Mission Critical Support Solution

HP has introduced a new building block approach which allows customers to purchase the right coverage at the right time whether purchasing an initial server blade plus enclosure or purchasing additional ProLiant server blades over time. HP will offer two sets of Care Pack services, one designed to support the server blade and one designed to support the enclosure.

HP Care Pack services for HP ProLiant Server Blades cover the server blade and all HP branded hardware options qualified for the server, purchased at the same time or afterwards, internal to the server.

HP Care Pack services for the c7000 Enclosure cover the enclosure, power supplies and fans. HP qualified rack options are covered by these services when installed within the same rack. HP Supported Ethernet devices covered include the Ethernet Pass-Through Module, Fibre Channel Pass-Through Module, Cisco Catalyst 3020 and GbE2c Ethernet Blade Switch. **NOTE:** The Cisco Catalyst 3020 Blade Switch is not covered by Care Pack services.

### *Standard Features*

**NOTE:** For more information regarding the Blade service portfolio visit our worldwide web site on the internet at: <http://h20219.www2.hp.com/services/cache/81725-0-0-225-121.html>

**NOTE:** For more information on HP Care Pack services, contact any of our worldwide sales offices or resellers or visit our worldwide Web site on the internet at:

<http://www.hp.com/hps/carepack>

**NOTE:** For more complete information on HP Services offerings, customers and resellers, please visit us at: <http://www.hp.com/hps>

**NOTE:** Additional information regarding worldwide limited warranty and technical support is available at: <http://h18004.www1.hp.com/products/servers/platforms/warranty/index.html>

Dual-Core Model

<b>HP ProLiant BL460c 5063 DC, 2GB (1P)</b> 404664-B21	<b>Processor(s)</b>	(1) Dual-core Intel Xeon 5063 Processor (3.2 GHz, MV, 1066 FSB)
	<b>Cache Memory</b>	2x2MB Level 2 cache memory
	<b>Memory</b>	2 GB (2 x 1 GB) PC2-5300, FBD DDR2-667
	<b>Network Adapter</b>	(2) Embedded Dual NC373i Multifunction Gigabit NICs
	<b>Storage Controller</b>	Smart Array E200i Controller with 64 MB (optional battery-backed write cache)
	<b>Hard Drives</b>	No drives included; (2) SFF SAS/SATA drive bays
	<b>Internal Storage</b>	144GB SAS 120GB SATA
	<b>Optical Drive</b>	None
	<b>Form Factor</b>	Up to 16 half-height blades supported in HP BladeSystem c7000 Enclosure

### Configuration Information - Factory Integrated Models (North America only)

**NOTE:** For Configure to Order requirements within EMEA region, please consult local Sales Contact.

**NOTE:** HP does not allow factory integration of options into standard models listed above.

Configure-to-order servers must start with a CTO Chassis.

**NOTE:** This product offering does not support HP Factory Express Server Configuration Level 1.

**NOTE:** FIO indicates that this option is a Factory Installable Option.

### Step 1: Base Server Blade Configuration

<b>Models</b>	HP ProLiant BL460c CTO Blade (North America)	404667-B21
	<b>Configurable Model ships with:</b>	
	Two embedded (2) NC373i Multifunction Gigabit NICs plus (1) additional 10/100 NIC dedicated to iLO 2 Management	
	Integrated Smart Array E200i RAID controller with 64 MB cache	
	Two small form factor (SFF) SAS/SATA hot plug hard drive bays	
	Integrated Lights-Out 2 Standard Blade Edition	

### Step 2: Choose Required Options (one of the following from each list unless otherwise noted):

<b>Processors</b>	<b>For single processor configuration choose:</b>	
	Dual-Core Intel Xeon 5063 (3.2 GHz MV, 1066 FSB) (Mid-Voltage) Processor Option Kit, FIO Base	409598-L21
	<b>NOTE:</b> If 2 processors are desired, select one 409598-L21 and one 409598-B21.	
	Dual-Core Intel Xeon 5050 (3.0 GHz, 667 FSB) Processor Option Kit, FIO Base	409597-L21
	<b>NOTE:</b> If 2 processors are desired, select one 409597-L21 and one 409597-B21.	
<b>Memory</b>	1 GB FBD PC2-5300 2 x 512 MB Kit	397409-B21
	2 GB FBD PC2-5300 2 x 1 GB Kit	397411-B21
	4 GB FBD PC2-5300 2 x 2 GB Kit	397413-B21
	<b>NOTE:</b> Must be installed in pairs	
<b>Cache Support</b>	64 MB Cache - FIO Only	405102-B21
	128MB Battery-Backed Cache Enabler	351580-B21
	<b>NOTE:</b> Supports the Smart Array E200 Controller, Smart Array 641 Controller, and Smart Array 642 Controller.	

### Step 3: Choose Additional Factory Integratable Options

<b>Fibre Channel Options</b>	Emulex LPe1105 FC Dual Channel 4Gb, PCI-E-to-Fibre Channel Host Bus Adapter	403621-B21
	QLogic QMH2462 4Gb FC HBA for HP c-Class BladeSystem	403619-B21
<b>Communications</b>	HP NC373m PCI Express Dual Port Multifunction Gigabit Server Adapter for c-Class BladeSystem	406770-B21
	HP NC326m PCI Express Dual Port 1Gb Server Adapter for c-Class BladeSystem	406771-B21
	<b>NOTE:</b> Supports HP c-Class BladeSystems.	

### *Configuration Information - Factory Integrated Models (North America only)*

#### **Step 4: Choose Additional Options for Factory Integration**

**NOTE:** For additional options, including server blade enclosure with enhanced backplanes, interconnect options and power subsystem options; please refer to the "Options" section below. Some options may not be factory configurable. Please contact your local sales representative for additional information.

### Options

#### ProLiant Essentials Value Pack Software

##### ProLiant Essentials Integrated Lights-Out Select Pack

ProLiant Essentials Integrated Lights-Out Select Pack, 1 server License 413119-B21

ProLiant Essentials Integrated Lights-Out Select Pack 8-server License 413122-B21

**Featuring:** sophisticated remote control and security features for HP BladeSystem servers and ProLiant ML/DL servers in text console environments.

**NOTE:** For additional ProLiant Essentials Integrated Lights-Out Packs please see the QuickSpecs at:

[http://h18000.www1.hp.com/products/quickspecs/12362\\_div/12362\\_div.HTML](http://h18000.www1.hp.com/products/quickspecs/12362_div/12362_div.HTML)

##### ProLiant Essentials Intelligent Networking Pack Windows Edition and Linux Edition

ProLiant Essentials Intelligent Networking Pack - Windows Edition, Single Server License 372906-B21

**NOTE:** For use with a single server. Contains one license with a unique license activation key and documentation.

ProLiant Essentials Intelligent Networking Pack Linux Edition, Single Server License 397004-B21

**NOTE:** For use with a single server. Contains one license with a unique license activation key and documentation.

**NOTE:** For additional ProLiant Intelligent Networking Pack License Kits-Windows Edition please see the QuickSpecs at:

[http://h18000.www1.hp.com/products/quickspecs/12062\\_div/12062\\_div.HTML](http://h18000.www1.hp.com/products/quickspecs/12062_div/12062_div.HTML)

**NOTE:** For additional ProLiant Intelligent Networking Pack License Kits-Linux Edition please see the QuickSpecs at:

[http://h18000.www1.hp.com/products/quickspecs/12327\\_div/12327\\_div.HTML](http://h18000.www1.hp.com/products/quickspecs/12327_div/12327_div.HTML)

##### ProLiant Essentials Server Migration Pack

ProLiant Essentials Server Migration Pack, Single-Migration License 375345-B21

**NOTE:** Contains one license, enabling 1 server migration, with a unique license activation key and documentation.

**NOTE:** This license allows 1 server to be migrated from a physical server to a virtual machine. Or this license can be used to migrate a virtual machine from one virtualization layer i.e. VMware GSX to a different virtualization layer such as VMware ESX or Microsoft Virtual Server 2005.

**NOTE:** For additional ProLiant Server Migration Pack License Kits please see the QuickSpecs at:

[http://h18000.www1.hp.com/products/quickspecs/12328\\_div/12328\\_div.HTML](http://h18000.www1.hp.com/products/quickspecs/12328_div/12328_div.HTML)

##### ProLiant Essentials Workload Management Pack

ProLiant Essentials Workload Management Pack, Single Server License 303284-B21

**NOTE:** For additional ProLiant Workload Management Pack License Kits please see the QuickSpecs at:

[http://h18000.www1.hp.com/products/quickspecs/11452\\_div/11452\\_div.HTML](http://h18000.www1.hp.com/products/quickspecs/11452_div/11452_div.HTML)

##### ProLiant Essentials Virtual Machine Management Pack

ProLiant Essentials Virtual Machine Management Pack, Single-Server License 372214-B21

**NOTE:** For use with a single server. Contains one license with a unique license activation key and documentation.

**NOTE:** For additional ProLiant Virtual Machine Management Pack License Kits please see the QuickSpecs at:

[http://h18000.www1.hp.com/products/quickspecs/12328\\_div/12328\\_div.HTML](http://h18000.www1.hp.com/products/quickspecs/12328_div/12328_div.HTML)

### Options

**NOTE:** Flexible and volume quantity license kits are available for ProLiant Essentials Value Packs. Refer to <http://www.hp.com/servers/proliantessentials> or the various ProLiant Essentials Value Pack product QuickSpecs for more information.

**NOTE:** For more information regarding ProLiant Essentials Software, please see the following URL: <http://www.hp.com/servers/proliantessentials>.

<b>Processors</b>	Dual-Core Intel Xeon Processor 5063 (3.2 GHz MV, 1066 FSB) (Mid-Voltage)	409598-B21
<b>Memory</b>	1 GB FBD PC2-5300 2 x 512 MB Kit 2 GB FBD PC2-5300 2 x 1 GB Kit 4 GB FBD PC2-5300 2 x 2 GB Kit <b>NOTE:</b> Must be installed in pairs.	397409-B21 397411-B21 397413-B21
<b>Hard Drives</b>	<b>Serial Attached SCSI (SAS) SFF Hot Plug</b> HP 36GB 3G SAS 10K SFF HDD HP 72GB 3G SAS 10K SFF HDD <b>NOTE:</b> SAS drives have a 3 year warranty. <b>NOTE:</b> Please see the SAS Hard Drive QuickSpecs for Technical Specifications such as capacity, height, width, interface, transfer rate, seek time, physical configuration, and operating temperature: <a href="http://h18000.www1.hp.com/products/quickspecs/12244_div/12244_div.HTML">http://h18000.www1.hp.com/products/quickspecs/12244_div/12244_div.HTML</a> (Worldwide) <b>SFF SATA Hot Plug</b> HP 60GB 1.5G SATA 5.4K SFF HDD <b>NOTE:</b> SATA drives have a 1 year warranty. Please see the SATA Hard Drive QuickSpecs for Technical Specifications such as capacity, height, width, interface, transfer rate, seek time, physical configuration, and operating temperature: <a href="http://h18000.www1.hp.com/products/quickspecs/12091_div/12091_div.HTML">http://h18000.www1.hp.com/products/quickspecs/12091_div/12091_div.HTML</a> (Worldwide)	375859-B21 375861-B21 379306-B21
<b>Storage Controllers</b>	128MB Battery-Backed Cache Enabler <b>NOTE:</b> Supports the Smart Array E200 Controller, Smart Array 641 Controller, and Smart Array 642 Controller.	351580-B21
<b>Communications</b>	HP NC373m PCI Express Dual Port Multifunction Gigabit Server Adapter for c-Class BladeSystem HP NC326m PCI Express Dual Port 1Gb Server Adapter for c-Class BladeSystem	406770-B21 406771-B21



### Options

<b>HP ProLiant BL460c - Fibre Channel Adapter</b>	Emulex LPe1105 FC Dual Channel 4Gb, PCI-E-to-Fibre Channel Host Bus Adapter	403621-B21
	QLogic QMH2462 4Gb FC HBA for HP c-Class BladeSystem	403619-B21
<b>NOTE: Supports HP c-Class BladeSystems</b>		

### Tape Libraries

#### HP StorageWorks MSL2024 Tape Library

HP StorageWorks MSL2024 1 Ultrium 960 Drive Library	AG115A
HP StorageWorks MSL2024 1 Ultrium 448 Drive Library	AG116A
HP StorageWorks MSL2024 2 Ultrium 448 Drive Library	AG117A

#### HP StorageWorks MSL4048 Tape Library

HP StorageWorks MSL4048 1 Ultrium 448 Drive Library	AG320A
HP StorageWorks MSL4048 2 Ultrium 448 Drive Library	AG321A
HP StorageWorks MSL4048 1 Ultrium 960 Drive Library	AG322A
HP StorageWorks MSL4048 2 Ultrium 960 Drive Library	AG323A

#### HP StorageWorks MSL6000 Tape Library

##### Ultrium 960 technology

HP StorageWorks MSL6030 1 Ultrium 960 Dr LVDS Library	AD606B
HP StorageWorks MSL6030 1 Ultrium 960 Dr FC Library	AD608B
HP StorageWorks MSL6030 2 Ultrium 960 Dr LVDS Library	AD607B
HP StorageWorks MSL6030 2 Ultrium 960 Dr FC Library	AD609B
HP StorageWorks MSL6060 2 Ultrium 960 Dr LVDS Library	AD610B
HP StorageWorks MSL6060 2 Ultrium 960 Dr FC Library	AD611B

##### Ultrium 460 technology

HP StorageWorks MSL6030 1 Ultrium 460 Dr LVDS Library	AD598B
HP StorageWorks MSL6030 1 Ultrium 460 Dr FC Library	AD600B
HP StorageWorks MSL6030 2 Ultrium 460 Dr LVDS Library	AD599B
HP StorageWorks MSL6030 2 Ultrium 460 Dr FC Library	AD601B
HP StorageWorks MSL6060 2 Ultrium 460 Dr LVDS Library	AD603B
HP StorageWorks MSL6060 2 Ultrium 460 Dr FC Library	AD604B

**NOTE:** Please reference the MSL2024, MSL4048 and MSL6000 Tape Library QuickSpecs at <http://www.hp.com/go/automation> for additional information needed to create a complete solution; reference current compatibility information at <http://www.hp.com/go/ebs>

#### HP StorageWorks Virtual Library Systems

HP StorageWorks 6105 Virtual Library System	AF728A
HP StorageWorks 6109 Virtual Library System	AG167A
HP StorageWorks 6510 Virtual Library System	AF729A
HP StorageWorks 6518 Virtual Library System	AG168A
HP StorageWorks 6840 Virtual Library System	AG051A
HP StorageWorks 6870 Virtual Library System	AG169A

**NOTE:** Please reference the VLS Tape Libraries QuickSpecs at <http://www.hp.com/go/automation> for additional information needed to create a complete solution. Reference current compatibility information at <http://www.hp.com/go/ebs>

<b>HP StorageWorks Modular Smart Array 1000</b>	HP StorageWorks Modular Smart Array 1000	201723-B22
	<b>NOTE:</b> Please see the Modular Smart Array 1000 QuickSpecs for additional options and configuration information at <a href="http://h18000.www1.hp.com/products/quickspecs/11033_div/11033_div.HTML">http://h18000.www1.hp.com/products/quickspecs/11033_div/11033_div.HTML</a> (Worldwide)	
<b>Cluster Options</b>	<p><b>NOTE:</b> For configuration/certification options for the HP Parallel Database Cluster for Oracle RAC please go to: <a href="http://www.hp.com/solutions/highavailability/oracle">http://www.hp.com/solutions/highavailability/oracle</a></p> <p><b>NOTE:</b> For additional information regarding the HP ProLiant Cluster for HA/F500 please see the following QuickSpecs at: <a href="http://h18000.www1.hp.com/products/quickspecs/10232_div/10232_div.html">http://h18000.www1.hp.com/products/quickspecs/10232_div/10232_div.html</a> (Worldwide)</p> <p>ProLiant Cluster Starter Kit 364023-B21</p> <p><b>NOTE:</b> For additional information regarding the ProLiant Cluster Starter Kit please see the following QuickSpecs at: <a href="http://h18000.www1.hp.com/products/quickspecs/11935_div/11935_div.html">http://h18000.www1.hp.com/products/quickspecs/11935_div/11935_div.html</a> (Worldwide)</p> <p>HP HA/F200 for Entry SAN Cluster 364026-B22</p> <p>HP HA/F200 for Entry SAN Cluster (Japan) 364026-292</p> <p><b>NOTE:</b> For additional information regarding the ProLiant Cluster for Entry Level SAN please see the following QuickSpecs at: <a href="http://h18000.www1.hp.com/products/quickspecs/11932_div/11932_div.html">http://h18000.www1.hp.com/products/quickspecs/11932_div/11932_div.html</a> (Worldwide)</p> <p>ProLiant Cluster HA/F500 for the Enterprise SAN 364024-B21</p> <p><b>NOTE:</b> For additional information regarding the ProLiant Cluster HA/F500 for Enterprise SAN please see the following QuickSpecs at: <a href="http://h18000.www1.hp.com/products/quickspecs/11933_div/11933_div.html">http://h18000.www1.hp.com/products/quickspecs/11933_div/11933_div.html</a> (Worldwide)</p> <p>HP Serviceguard for Linux, A.11.16 (single license version- Red Hat EL 3&amp;4, SUSE SLES9) 307754-B26</p> <p>HP Serviceguard for Linux ProLiant Cluster, A.11.16 (2 license version - Red Hat EL 3&amp;4, SUSE SLES9) 305199-B26</p> <p><b>NOTE:</b> For additional information regarding the HP Serviceguard for Linux License, please see the following QuickSpecs at: <a href="http://h18000.www1.hp.com/products/quickspecs/11518_div/11518_div.html">http://h18000.www1.hp.com/products/quickspecs/11518_div/11518_div.html</a> (Worldwide)</p>	
<b>USB Options</b>	<p>HP USB 2-Button Optical Scroll Mouse (Carbonite/Silver) DC172B</p> <p>USB 1.44-MB External Diskette Drive (Carbonite) DC141B</p> <p>512MB HP DriveKey II ED516AA</p> <p>USB 2.0 4-port Hub DG954A</p> <p>2004 Standard Keyboard USB DT528A#xxx</p>	

### Options

<b>HP Rack 5000 Series</b> (Metallic Carbonite)	HP5642 Rack-Unassembled	358254-B21
	<b>NOTE:</b> Please see the HP Rack 5642 QuickSpecs for additional part numbers and Technical Specifications such as height, width, depth, weight, and color: <a href="http://h18000.www1.hp.com/products/quickspecs/12074_div/12074_div.HTML">http://h18000.www1.hp.com/products/quickspecs/12074_div/12074_div.HTML</a> (Worldwide) <b>NOTE:</b> For additional information regarding Rack Cabinets, please see the following URL: <a href="http://www.hp.com/go/rackandpower">http://www.hp.com/go/rackandpower</a>	
<b>HP Rack 10000 G2 Series</b> (Graphite Metallic)	HP Rack 10642 G2 (42U) Cabinet - Pallet	AF001A
	HP Rack 10642 G2 (42U) Cabinet - Shock Pallet	AF002A
	HP Rack 10642 G2 (42U) Cabinet - Crated	AF003A
	HP 10642 G2 (42U) Rack Cabinet, with Extension - Shock Pallet*	AF004A
	HP 10642 G2 (42U) Rack Cabinet, without door - Shock Pallet*	AF005A
	HP 10642 G2 (42U) Rack Cabinet - with Extension, without door - Shock Pallet*	AF006A
	HP Rack 10636 G2 (36U) Cabinet - Pallet	AF011A
	HP Rack 10636 G2 (36U) Cabinet - Shock Pallet	AF012A
	HP Rack 10636 G2 (36U) Cabinet - Crate	AF013A
	HP 10636 G2 (36U) Rack Cabinet , with Extension - Shock Pallet*	AF014A
	HP 10636 G2 (36U) Rack Cabinet, without door - Shock Pallet*	AF015A
	HP 10636 G2 (36U) Rack Cabinet, with Extension, without door - Shock Pallet	AF016A
	<b>NOTE:</b> Please see the Rack 10000 QuickSpecs for Technical Specifications such as height, width, depth, weight, and color: <a href="http://h18000.www1.hp.com/products/quickspecs/10995_div/10995_div.HTML">http://h18000.www1.hp.com/products/quickspecs/10995_div/10995_div.HTML</a> (Worldwide) <b>NOTE:</b> For additional information regarding Rack Cabinets, please see the following URL: <a href="http://h18000.www1.hp.com/products/servers/proliantstorage/rack-options/index.html">http://h18000.www1.hp.com/products/servers/proliantstorage/rack-options/index.html</a>	
<b>Rack Options for Rack 10000 G2 Series</b>	HP 10642 G2 Front Door ALL	AF009A
	HP 10636 G2 Front Door ALL	AF019A
	10642 G2 (42U) Side Panels (set of two) (Graphite Metallic)	AF054A
	10636 G2 (36U) Side Panels (set of two) (Graphite Metallic)	AF056A
	10636 G2 Rear Extension Kit	AF060A
	600mm G2 Stabilizer Option Kit (Graphite)	AF062A
	600mm G2, Heavy Duty Stabilizer Option Kit (Graphite)	AF064A
	800mm G2 Stabilizer Option Kit (Graphite)	AF066A
	800mm G2, Heavy Duty Stabilizer Option Kit (Graphite)	AF068A
	<b>NOTE:</b> Supports 10000 G2 Series only.	
	HP 10000 G2 Rack Grounding Kit	AF074A
	600W 10K G2 Rack Tie Down	AF076A
	<b>NOTE:</b> For additional information regarding Rack Options, please see the following URL: <a href="http://www.hp.com/go/rackandpower">http://www.hp.com/go/rackandpower</a> .	

### Options

<b>HP Rack 10000 Series</b> (Graphite Metallic)	10642 (42U) Infrastructure Rack (Low Voltage)	379006-001
	10642 (42U) Infrastructure Rack (High Voltage)	379005-001
	HP S10614 (14U) Rack Cabinet - Shock Pallet	292302-B22
	HP Rack 10842 (42U, 800mm wide) Rack Cabinet - Pallet	257415-B21
	<b>NOTE:</b> Server Blade Enclosures must be field integrated into the 10842 racks. Factory integration of Server Blade Enclosures into the 10842 is not supported.	
	HP Rack 10842 (42U, 800mm wide) Rack Cabinet - Shock Pallet	257415-B22
	<b>NOTE:</b> Server Blade Enclosures must be field integrated into the 10842 racks. Factory integration of Server Blade Enclosures into the 10842 is not supported.	
	HP 10647 (47U) Rack Cabinet - Pallet	245160-B21
	HP 10647 (47U) Rack Cabinet - Shock Pallet	245160-B23
	HP Rack 10642 (42U) Cabinet - Pallet	245161-B21
	HP Rack 10642 (42U) Cabinet - Shock Pallet	245161-B22
	HP Rack 10642 (42U) Cabinet - Crated	245161-B23
	HP Rack 10636 (36U) Cabinet - Pallet	245162-B21
	HP Rack 10636 (36U) Cabinet - Shock Pallet	245162-B22
	HP Rack 10636 (36U) Cabinet - Crated	245162-B23
	HP Rack 10622 (22U) Cabinet - Pallet	245163-B21
	HP Rack 10622 (22U) Cabinet - Shock Pallet	245163-B22
	HP Rack 10622 (22U) Cabinet - Crated	245163-B23
	<b>NOTE:</b> xxxxxx-B21 (pallet) used to ship empty racks shipped on a truck. xxxxxx-B22 (shock pallet) used to ship racks with equipment installed (by custom systems, VARs and Channels). xxxxxx-B23 (crated) used for air shipments of empty racks.	
	<b>NOTE:</b> It is mandatory to use a shock pallet in order to ship racks with equipment installed.	
	<b>NOTE:</b> Please see the Rack 10000 QuickSpecs for additional part number and Technical Specifications such as height, width, depth, weight, and color: <a href="http://h18000.www1.hp.com/products/quickspecs/10995_div/10995_div.HTML">http://h18000.www1.hp.com/products/quickspecs/10995_div/10995_div.HTML</a> (Worldwide)	
	<b>NOTE:</b> For additional information regarding Rack Cabinets, please see the following URL: <a href="http://www.hp.com/go/rackandpower">http://www.hp.com/go/rackandpower</a> .	

### Options

#### Monitors and Keyboards

TFT7210R Rack Mounted 17" Monitor	348373-B21
<b>NOTE:</b> For a complete list of Monitors please view the following URL: <a href="http://www.hp.com/go/kvm">http://www.hp.com/go/kvm</a>	
TFT7600 Rackmount Keyboard Monitor US	AG052A
TFT7600 Rackmount Keyboard Monitor UK	AG053A
TFT7600 Rackmount Keyboard Monitor GR	AG054A
TFT7600 Rackmount Keyboard Monitor FR	AG055A
TFT7600 Rackmount Keyboard Monitor IT	AG056A
TFT7600 Rackmount Keyboard Monitor SP	AG057A
TFT7600 Rackmount Keyboard Monitor DEN	AG058A
TFT7600 Rackmount Keyboard Monitor NOR	AG059A
TFT7600 Rackmount Keyboard Monitor SE/FI	AG060A
TFT7600 Rackmount Keyboard Monitor SWI	AG061A
TFT7600 Rackmount Keyboard Monitor PORT	AG062A
TFT7600 Rackmount Keyboard Monitor BEL	AG063A
TFT7600 Rackmount Keyboard Monitor JPN2	AG064A
TFT7600 Rackmount Keyboard Monitor RUS	AG065A
TFT7600 Rackmount Keyboard Monitor INTL	AG066A
1U Rackmount Keyboard with USB, US	AG072A
1U Rackmount Keyboard with USB, UK	AG073A
1U Rackmount Keyboard with USB, GR	AG074A
1U Rackmount Keyboard with USB, FR	AG075A
1U Rackmount Keyboard with USB, ITL	AG076A
1U Rackmount Keyboard with USB, SP	AG077A
1U Rackmount Keyboard with USB, DEN	AG078A
1U Rackmount Keyboard with USB, NOR	AG079A
1U Rackmount Keyboard with USB, SE/FI	AG080A
1U Rackmount Keyboard with USB, SWI	AG081A
1U Rackmount Keyboard with USB, PORT	AG082A
1U Rackmount Keyboard with USB, BEL	AG083A
1U Rackmount Keyboard with USB, JPN2	AG084A
1U Rackmount Keyboard with USB, RUS	AG085A
1U Rackmount Keyboard with USB, INTL	AG086A

**NOTE:** For additional information regarding Rack Options, please see the following URL: <http://www.hp.com/go/rackandpower>.

### Options

<b>HP KVM Switch Options</b>	HP BladeSystem Cat 5 KVM Interface Adapter	AF100A
	Server Console Switch (KVM), 0 x 1 x 8 port	336044-B21
	Server Console Switch (KVM), 0 x 2 x 16 port	336045-B21
	PS/2 Interface Adapter, 1 pack	262588-B21
	PS/2 Interface Adapter, 8 pack	262587-B21
	USB Interface Adapter, 1 pack	336047-B21
	Serial Interface adapter - 1 Pack with power supply	373045-B21
	<b>NOTE:</b> Cat5e cables are required to connect Interface Adapters to Consoles Switches. Cat52 cables can be found at the following URL: <a href="http://www.hp.com/go/kvm">http://www.hp.com/go/kvm</a>	
	HP 1x4 USB/PS2 KVM Switch, TT (NA/JPN)	371301-D71
	HP 1x4 USB/PS2 KVM Switch, TT (AU/NZ)	371301-011
	HP 1x4 USB/PS2 KVM Switch, TT (UK)	371301-031
	HP 1x4 USB/PS2 KVM Switch, TT (EU)	371301-A21
	HP 1x4 USB/PS2 KVM Switch, RM (ALL)	371302-B21
	HP PS2 KVM Cable with audio, 6'-2-pack	371730-B21
	HP USB KVM Cable with audio, 6'-2-pack	371729-B21
<b>NOTE:</b> For additional information regarding KVM switches, Serial Console servers, rack mount monitors, keyboards and all related options please see the following URL: <a href="http://www.hp.com/go/kvm">http://www.hp.com/go/kvm</a>		

<b>HP Serial Console Server Options</b>	HP 16 Port Serial Console Server (worldwide)	AF101A
	HP 48 Port Serial Console Server (worldwide)	AF102A
	Serial Adapter, RJ45-DB9 DCE Female, 1 Pack	AF103A
	Serial Adapter, RJ45-DB9 DCE Female, 8 Pack	AF110A
	<b>NOTE:</b> Cat5e cables are required to connect Serial Adapters to Serial Console Servers. Additional Serial Adapters and Cat5e cables can be found at the following URL: <a href="http://www.hp.com/go/kvm">http://www.hp.com/go/kvm</a> .	
	<b>NOTE:</b> For additional information regarding KVM switches, Serial Console servers, rack mount monitors, keyboards and all related options please see the following URL: <a href="http://www.hp.com/go/kvm">http://www.hp.com/go/kvm</a> .	

### Service and Support Offerings (HP Care Pack Services)

**NOTE:** The HP Care Pack service part numbers below for ProLiant BL c-Class server blades, cover the server blade and all HP branded hardware options qualified for the server, purchased at the same time or afterwards, internal to the server.

#### Hardware Services On-site Service

4-Hour On-site Service, 5-Day x 13-Hour Coverage, 3 Years, Electronic	UE458E
4-Hour On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic	UE459E
6-Hour Call to Repair, On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic	UE460E

#### Support Plus 24

Onsite HW support 24x7, 4hr response and Microsoft O/S SW Tech support offsite, onsite at HP's discretion, 24x7 2hr response time incl. HP holidays, Electronic	UE473E
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### Options

**NOTE:** HP Care Pack services for the c7000 Enclosure cover the enclosure, power supplies and fans. HP qualified rack options are covered by these services when installed within the same rack. HP Supported Ethernet devices covered include the Ethernet Pass-Through Module, Fibre Channel Pass-Through Module, Cisco Catalyst 3020 and GbE2c Ethernet Blade Switch.

#### Hardware Services On-site Service

Next Business Day On-site Service, 5-Day x 9-Hour Coverage, 3 Years, Electronic	UE477E
4-Hour On-site Service, 5-Day x 13-Hour Coverage, 3 Years, Electronic	UE478E
4-Hour On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic	UE479E
6-Hour Call to Repair, On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic	UE480E
Hardware Installation, Electronic	U5988E

**NOTE:** The HP Care Pack service part numbers below covers the HP 4Gb, 12 Port SAN Switch & 4Gb, 12 Port SAN Switch Upgrade LTU.

#### Hardware Services On-site Service

Next Business Day On-site Service, 5-Day x 9-Hour Coverage, 3 Years, Electronic	UC007E
4-Hour On-site Service, 5-Day x 13-Hour Coverage, 3 Years, Electronic	UC008E
4-Hour On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic	UC009E
6-Hour Call to Repair, On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic	UC023E
Hardware Installation, Electronic	U5988E

**NOTE:** The HP Care Pack service part numbers below covers the HP 4Gb, 24 Port SAN Switch.

#### Hardware Services On-site Service

Next Business Day On-site Service, 5-Day x 9-Hour Coverage, 3 Years, Electronic	UE436E
4-Hour On-site Service, 5-Day x 13-Hour Coverage, 3 Years, Electronic	UE437E
4-Hour On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic	UE438E
6-Hour Call to Repair, On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic	UE439E
Hardware Installation, Electronic	U5988E

**NOTE:** The HP Care Pack service part numbers below covers the HP 4Gb, 24 Port SAN Switch Power Pack.

#### Hardware Services On-site Service

##### Support Plus

Onsite HW support, 8am-9pm, M-F, 4hr response and SW Tech support offsite, onsite at HP's discretion, 8am-9pm, M-F 2hr response time excl. HP holidays, Electronic	UE728E
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##### Support Plus 24

Onsite HW support 24x7, 4hr response and SW Tech support offsite, onsite at HP's discretion, 24x7 2hr response time incl. HP holidays, Electronic	UE729E
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#### Installation & Start-up Services

HP Installation & Startup Service for HP BladeSystem Infrastructure, Electronic	UE602E
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**NOTE:** Provides for an integrated hardware and software implementation that includes remote service planning, onsite deployment of hardware and software,



### Options

installation verification testing and customer orientation. Hardware deployment covers the installation of a single BladeSystem enclosure that include server blades (up to 16), Ethernet network interconnect, and power options. Software deployment covers the installation and configuration of HP BladeSystem Essential Insight Control Datacenter Edition which includes Systems Insight Manager (SIM), HP Rapid Deployment Pack (RDP), Vulnerability and Patch Management Pack (VPM) and Performance Management Pack (PMP) and deploy up to two editions of either Windows or Linux, using scripted operating system installation software.

ProLiant BL c-Class Blade Server Hardware Installation, Electronic UE493E

ProLiant BL c-Class Enclosure and Server Blade Hardware Installation, Electronic UE494E

Provides for the Installation and Start-up of ProLiant Essentials Rapid Deployment Pack, Electronic U5683E

**NOTE:** Provides installation on a Customer supplied server designated as a Deployment Server. Includes the deployment of a single server. This new server will be deployed using either one of the pre-configured scripts or an image. In addition, the service will provide for the capture and storage of the configuration of the newly deployed server and orientation on product usage. To be delivered during standard office hours, standard office days.

Provides for the Installation and Start-up of Rapid Deployment Pack Implementation of Rapid Deployment Pack (Basic) (Electronic) UA042E

HP ProLiant Essentials Vulnerability and Patch Management Pack Installation and Startup Service, Electronic UC929E

**NOTE:** Service coverage: onsite installation of the Vulnerability and Patch Management (VPM) software on a customer designated server, configuration of the VPM software to acquire security patches, enabling the VPM software to scan up to five (5) systems, applying the security patches to the designated servers, generating a report from VPM that shows the vulnerability assessment results, and providing customer with an orientation to the software.

Provides for the Installation and Start-up of System Insight Manager (Electronic) UA041E

Provides for the Installation and Start-up of System Insight Manager Agents (Electronic) UA040E

**NOTE:** For more information, customer/resellers can contact <http://www.hp.com/hps/carepack/services/>

#### Software Operating Environment Care Packs

Microsoft Software Operating Environment Software Telephone 9x5 - 3 incident (Electronic) U8169E

Red Hat Software Operating Environment Software Telephone 9x5 - 10 incident (Electronic) U3402E

SUSE Software Operating Environment Software Telephone 9x5 - 3 incident (Electronic) U9615E

ProLiant Essentials Operating Environment, - 5 Day, 9x5, 1 year, 3 incident (Electronic) U8222E

ProLiant Essentials Operating Environment, - 5 Day, 24x7, 1 year, 3 incident (Electronic) U8301E

ProLiant Essentials Operating Environment, - 5 Day, 9x5, 1 year, 10 incident UE006E

ProLiant Essentials Operating Environment, - 5 Day, 24x7, 1 year, 10 incident UE116E

ProLiant Essentials Operating Environment, - 5 Day, 9x5, 1 year, 25 incident UE117E

ProLiant Essentials Operating Environment, - 5 Day, 24x7, 1 year, 25 incident UE118E

Options

ProLiant Essentials Operating Environment, - 5 Day, 9x5,1 year, 50 incident	UE119E
ProLiant Essentials Operating Environment, - 5 Day, 24x7,1 year,50 incident	UE120E
ProLiant Essentials Operating Environment, - 5 Day, 9x5,1 year, unlimited SW Tech Support	UE121E
ProLiant Essentials Operating Environment, - 5 Day, 24x7,1 year, unlimited SW Tech Support	UE452E
ProLiant Essentials Operating Environment, - 5 Day, 9x5, 3 year, unlimited SW Tech Support	UE453E
ProLiant Essentials Operating Environment, - 5 Day, 24x7, 3 year, unlimited SW Tech Support	UE454E

**NOTE:** For more information, customer/resellers can contact <http://www.hp.com/hps/carepack/services/>

Memory

DIMM installation guidelines:

- 1. All DIMMs must be PC2-5300 Fully Buffered DIMMs (DDR2-667) running at 533 MHz.
- 2. Both DIMM slots in a memory bank must be populated.
- 3. Banks must be populated in sequential alphabetic order, starting with bank A.
- 4. Both DIMMs in a memory bank must be identical. Install identical DIMMs as pairs only, starting with DIMM socket 1, bank A.
- 5. Multiple advanced memory protection (AMP) modes are supported, based on FBDIMM population and RBSU selection. The server blade defaults to Advanced ECC

HP ProLiant BL460c Server Blade (1P Model)

Standard Memory

Up to 2048-MB of PC2-5300, FBD DDR2-667 ECC DIMMs installed (2 x 1 GB ECC DIMMs) Memory is available with the installation of optional PC2-5300, FBD DDR2-667 DIMM memory expansion kits.

Optional Memory

Up to 10246-MB of PC2-5300, FBD DDR2-667 ECC DIMMs. Memory is available with the installation of optional PC2-5300, FBD DDR2-667 DIMM memory expansion kits.

Standard Memory Replaced with Optional Memory

Up to 1638-MB of DDR2 FBD-667 DIMMs, Memory is available with the installation of optional PC2-5300, FBD DDR2-667 DIMM memory expansion kits.

Memory		Slot							
		1	2	3	4	5	6	7	8
Standard	2048 MB	Empty	Empty	1024 MB	Empty	Empty	1024 MB	Empty	Empty
Optional	1024 MB	512 MB	Empty	Empty	512 MB	Empty	Empty	Empty	Empty
Maximum	16384 MB	2048 MB	2048 MB	2048 MB	2048 MB	2048 MB	2048 MB	2048 MB	2048 MB

Following are memory options available from HP:

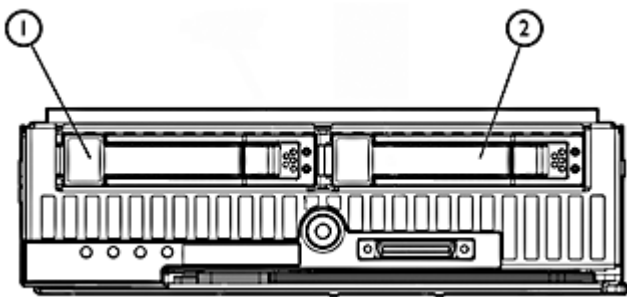
- 1GB FBD PC2-5300 2X512MB Kit
  - 2GB FBD PC2-5300 2X1GB Kit
  - 4GB FBD PC2-5300 2x2GB Kit
- 397409-B21

397411-B21

397413-B21



Storage



1-2      2 x SFF SAS or SATA Hot Plug Hard Drives

Hard Drives

SAS Hard Drive

	Quantity Supported	Position Supported	Controller
36 GB 10,000 rpm SAS	2	1-2	Smart Array E200i Controller
72 GB 10,000 rpm SAS			

Serial-ATA (SATA) Hard Drive

	Quantity Supported	Position Supported	Controller
60 GB 5,400 rpm SATA	2	1-2	Smart Array E200i Controller

External Storage

	Quantity Supported	Position Supported	Host Controller or Adapter
Modular Smart Array 1000	Please see the Modular Smart Array 1000 QuickSpecs below to determine configuration requirements	External	Please see the Modular Smart Array 1000 QuickSpecs (URL below) for the latest list of supported HBAs

Modular Smart Array 1000:  
[http://h18000.www1.hp.com/products/quickspecs/11033\\_div/11033\\_div.HTML](http://h18000.www1.hp.com/products/quickspecs/11033_div/11033_div.HTML)

Storage

Tape Libraries

**NOTE:** For complete listing of tape library compatibility see <http://www.hp.com/go/ebs>.

	Quantity Supported	Position Supported	Controller
<b>HP StorageWorks Tape Libraries</b> MSL2024 (Ultrium 448 and 960-based) MSL4048 (Ultrium 448 and 960-based) MSL6000 (Ultrium 960 and 460-based) MSL6000 (SDLT 600-based)	Please reference the relevant MSL or Tape Library QuickSpecs to determine configuration requirements	External	Please consult the EBS connectivity matrix at <a href="http://www.hp.com/go/ebs">http://www.hp.com/go/ebs</a> for detailed connectivity information.
<b>HP StorageWorks Virtual Library Systems</b> 6105 VLS 6109 VLS 6510 VLS 6518 VLS 6840 VLS 6870 VLS	Please reference the VLS QuickSpecs to determine configuration requirements	External	Please consult the EBS connectivity matrix at <a href="http://www.hp.com/go/ebs">http://www.hp.com/go/ebs</a> for detailed connectivity information.

### *Power Specifications*

#### **NOTES:**

To review typical system power ratings use the Active Answers Power Calculator which is available via the online tool located at URL: <http://h30099.www3.hp.com/configurator/calc/Power%20Calculator%20Catalog.xls>

To drill down to calculators:

- Click on: "ProLiant Servers"
- Click on the Server of interest. Example: BL20p G3
- Click on: "Power Calculator" link. (You may need to scroll down to see it)

Technical Specifications

HP ProLiant BL460c Server Blade	Dimensions	Height	2.207 in (5.61 cm)
		Depth	20.058 in (50.95c m)
		Width	7.154 in (18.17 cm)
	Weight	Maximum	14.20 lb (6.44 kg)
	Temperature Range*	Operating	50°F to 95°F (10°C to 35°C)
		Non-Operating	-40°F to 140°F (-40°C to 60°C)
		Storage	-4°F to 140°F (-20°C to 60°C)
		Maximum Wet Bulb Temperature	86°F (-30°C)
		Operating	10% to 90%
	Relative Humidity**	Shipping	10% to 90%
		Storage	10% to 95%
	<b>*NOTE:</b> All temperature ratings shown are for sea level. An altitude derating of 1°C per 1.8°F per 1,000 ft (304.8 m) to 10,000 ft (3048 m) is applicable. No direct sunlight allowed. Upper operating limit is 10,000 ft (3,048 m) or 70 Kpa/10.1 psia. Upper non-operating limit is 30,000 ft (9,144 m) or 30.3 KPa/4.4 psia.		
	<b>**NOTE:</b> Storage maximum humidity of 95% is based on a maximum temperature of 113°F (45°C). Altitude maximum for storage corresponds to a pressure minimum of 70 KPa.		

Smart Array E200i Controller	Disk Drive and Enclosure Interface	3G SAS (Serial Attached SCSI)
		1.5G SATA (Serial Advanced Technology Attachment)
	SAS Connectors	2 internal (SFF8484) x4 wide port connectors
	Cache Memory Speed	DDR-1/266 MHz provides up to 4.2 GB/s maximum bandwidth.
	Server Interface	x4 2.5G PCIe provides 2GB/s maximum bandwidth.
	SAS Speed	x8 3G SAS provides 2.4GB/s maximum bandwidth.
	Cache Memory	40-bit 64MB or 128MB cache: ECC protection, battery-backed, and transportable
	Logical Drives Supported	Up to 32 logical volumes
	Maximum Logical Drive Capacity	144GB (2 x 72GB)
	Host Memory Addressing	64-bit, supporting greater than 2GB server memory space
	RAID Support	RAID 5 (Distributed Data Guarding)
		RAID 1+0 (Striping & Mirroring)
		RAID 0 (Striping)
	Upgradeable Firmware	Upgradeable Firmware



Technical Specifications

Embedded Dual NC373m Multifunction Gigabit NICs	Network Interface	1000Base-T	
	Compatibility	IEEE 802.3ab 1000Base-T	
	Data Transfer Method	PCI Express, four lanes (x4)	
	Network Transfer Rate (Theoretical Maximum Values)	1000Base-TX (Full-Duplex)	2000 Mb/s
	Connector	RJ-45	
	Cable Support	1000 Base-TX	Category 5 UTP up to 328 ft (100 m)
<hr/>			
Dual NC326m Multifunction Gigabit NICs	Network Interface	1000Base-T	
	Compatibility	IEEE 802.3ab 1000Base-T	
	Data Transfer Method	PCI Express, four lanes (x4)	
	Network Transfer Rate (Theoretical Maximum Values)	1000Base-TX (Full-Duplex)	2000 Mb/s
	Connector	RJ-45	
	Cable Support	1000 Base-TX	Category 5 UTP up to 328 ft (100 m)
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For hard drives, 1 GB = 1 billion bytes. Actual formatted capacity is less.